

ABSTRACT OF THE INVENTION

An improved turbine engine topology, wherein the improvement comprises a repositioning, with respect to a conventional intercooled regenerative turbine engine topology, of exhaust gas output from a low pressure turbine stage to a regenerator, to an exhaust gas output from a high pressure turbine stage to the regenerator. The engine topology may additionally employ, as an intermediate stage between the high pressure turbine and the low pressure turbine, a feedback control system, whereby the exhaust gas output from the high pressure turbine stage to the regenerator flows through the feedback control. The engine topology may advantageously also employ an additional cooler and an additional exhaust gas output in the feedback control, whereby exhaust gas flows from the feedback control through the additional cooler to a high pressure compressor stage, or the exhaust gas can flow from the feedback control through a bottoming cycle to the high pressure compressor stage. An exhaust gas condenser may advantageously be placed into the bottoming cycle system. The bottoming cycle / condenser improvements may alternatively be effected in other wise conventional intercooled regenerative turbine engine topology.